UNICOOL
First in Class, Precise in Cool

Cooling Solutions for the Information, Communication and Technology Industries
ABOUT US

AIRSYS Cooling Technologies Inc., is a global cooling solutions provider with products and engineering services designed to provide a wide variety of solutions for schools, data centers, mobile shelters and outdoor telecom cabinets. Whether the products are used for sensible cooling telecommunication environments, or for human comfort, the AIRSYS team of highly trained technicians can assist our client’s through every step of the deployment process from design through maintenance.

25th ANNIVERSARY
AIRSYS has reached an exciting milestone in 2020 with the company’s 25th anniversary as an award-winning supplier of the world’s most energy efficient cooling solutions.

RESEARCH AND DEVELOPMENT
As a global manufacturer of high-performance air-conditioning equipment, AIRSYS is committed to providing highly reliable and energy efficient cooling solutions for critical environments. At AIRSYS we are focused on progressive technologies for the HVAC industry. Through our large research and development division, we proudly develop new equipment that utilizes inverter driven technologies, coupled with precise controls to maximize the designed load calculations for a given space.

MANUFACTURING FACILITY
Located in the manufacturing belt of the Carolinas in Spartanburg County, AIRSYS operates out of a 60,000 square foot manufacturing facility and corporate headquarters. Our teams of highly trained technical, sales and field services staff are veteran HVAC industry insiders who all work together to provide 24/7 customer assistance for our clients.
The AIRSYS Group has multiple subsidiaries located around the world. We currently have two primary manufacturing facilities, one located in China and the other in the United States. We have served more than 45 countries around the world and continue to provide global support for our trusted partners.

**APAC**
- China
- Korea
- India
- Singapore
- Malaysia
- Philippines
- Indonesia
- Australia
- Pakistan
- Bangladesh
- Kazakhstan
- Nepal
- Oman
- Cambodia

**Europe**
- UK
- Germany
- Italy
- Spain
- Romania
- Serbia
- France
- Poland
- Turkey
- Russia

**LATAM**
- Brazil
- Argentina
- Peru
- Ecuador
- Colombia

**Africa**
- South Africa
- Kenya
- Nigeria

**NORAM**
- USA
- Canada
CORE COMPETITIVENESS

- Energy efficiency, Intelligent Control, High Reliability.
- Best value in Capital Expenditures (CAPEX) and lowest in Operational Expenditures (OPEX)
- Responsiveness
- Strong R&D capability
- Global Footprint providing turn-key service
- Leading Edge Technologies
- Lowest Total Cost of Ownership (TCO)
- Best in class manufacturing facility
SERVICE

Consultation
Design
Products
Engineering
Service

AIRSYS

BALANCE THE ENVIRONMENT.
TECHNOLOGIES

At AIRSYS we believe in the quality of the product throughout its entire life cycle, including research and development, pilot testing, manufacturing, sales, and service. Therefore, we feel it is necessary to ensure quality control at all points throughout the product’s life cycle. We oversee the entire process and have full participation in total quality management, so that quality standards continue to be met (or exceeded) and that customer satisfaction with our product is always ensured.

We proudly engineer the following ten technologies into each of our products. To Balance the Environment and forge ahead as a leading manufacturer of high performance HVAC products, these ten technologies are necessary to give our clients the highest quality products that reduce overall energy consumption, and provide high reliability for years to come.

10 CUTTING EDGE TECHNOLOGIES USED IN AIRSYS PRODUCTS

- Inverter Technology
- Free Cooling
- Air Filter Protection Devices (AFPD)
- Electronically Commutated Fans
- Intelligent Controls
- Adiabatic Cooling
- DC Powered Cooling
- IoT Compatible Software
- Supply Condition Control
- Smart Optimization for Refrigeration Systems
PRODUCT OVERVIEW

AIRSYS was the first manufacturer to develop a Wall Packaged Unit (WPU) with a variable speed compressor. AIRSYS designed the UNICOOL Unit specifically for computer and equipment environments with the cooling capacity heavily shifted toward sensible heat removal.

Our goal was to develop a WPU that was not only extremely energy efficient, but also made with high quality components. The UNICOOL unit is designed to withstand extreme climate zones, and has proven to be reliable due to the quality craftsmanship that went into the design of this high-performance unit.

FEATURES

- Variable Capacity Compressor
- Designed for Sensible Heat Removal
- Designed for 24/7 Operation over 10 years
- Adaptive Free Cooling

NOMINAL COOLING PERFORMANCE (AHRI 390)

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal Tonnage</th>
<th>Nominal Total Capacity</th>
<th>EER (Standard)</th>
<th>EER (90% Part Load)</th>
<th>EER (60% Part Load)</th>
<th>IPLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>11V1B3MR410AAC</td>
<td>2-4 Ton Variable</td>
<td>10.3kW / 35,200 BTUH</td>
<td>12.0</td>
<td>16.0</td>
<td>17.0</td>
<td>16.9</td>
</tr>
<tr>
<td>11V1T3MR410AAC</td>
<td>2-4 Ton Variable</td>
<td>10.2kW / 34,800 BTUH</td>
<td>11.5</td>
<td>15.5</td>
<td>16.5</td>
<td>16.4</td>
</tr>
<tr>
<td>15V1B4MR410AAC</td>
<td>3-6 Ton Variable</td>
<td>15.1kW / 51,500 BTUH</td>
<td>11.5</td>
<td>15.5</td>
<td>16.4</td>
<td>16.3</td>
</tr>
<tr>
<td>15V1T4MR410AAC</td>
<td>3-6 Ton Variable</td>
<td>14.8kW / 50,500 BTUH</td>
<td>11.0</td>
<td>15.0</td>
<td>16.0</td>
<td>15.5</td>
</tr>
<tr>
<td>28V2B5MR410AAC</td>
<td>3-10 Ton Variable</td>
<td>28.1kW / 96,000 BTUH</td>
<td>11.0</td>
<td>14.0</td>
<td>15.5</td>
<td>15.0</td>
</tr>
<tr>
<td>28V1B5MR410BAC</td>
<td>4-10 Ton Variable</td>
<td>28.1kW / 96,000 BTUH</td>
<td>11.5</td>
<td>15.0</td>
<td>16.0</td>
<td>15.9</td>
</tr>
<tr>
<td>28V1B5MR410CAC</td>
<td>4-10 Ton Variable</td>
<td>28.1kW / 96,000 BTUH</td>
<td>11.5</td>
<td>15.0</td>
<td>16.0</td>
<td>15.9</td>
</tr>
</tbody>
</table>

All Capacities, EER, and IPLV certified to AHRI 390 testing standard.
### UNIT DIMENSIONAL DRAWINGS

#### T(7kW,11kW,15kW)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UNI.7V1T2</td>
<td>41.18</td>
<td>30.71</td>
<td>73.62</td>
<td>27.95</td>
<td>13.98</td>
<td>30.24</td>
<td>7.99</td>
<td>27.99</td>
</tr>
<tr>
<td>UNI.11V1T3</td>
<td>44.92</td>
<td>26.83</td>
<td>92.91</td>
<td>34.72</td>
<td>15.67</td>
<td>30.24</td>
<td>9.68</td>
<td>29.76</td>
</tr>
<tr>
<td>UNI.15V1T4</td>
<td>53.35</td>
<td>35.88</td>
<td>92.91</td>
<td>34.72</td>
<td>15.67</td>
<td>30.24</td>
<td>9.68</td>
<td>29.76</td>
</tr>
</tbody>
</table>

#### 28V1B5 ADJUSTABLE STAND

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UNI.28V1B5</td>
<td>54.33</td>
<td>36.61</td>
<td>41.34</td>
<td>23.62</td>
<td>9.43</td>
<td>12.60</td>
</tr>
</tbody>
</table>

~16.54
For Example:
Model UNI11V1B3MR410.AAC stands for a UNICOOL unit with 11kW nominal cooling capacity, equipped with 1 variable speed compressor, cabinet size is B3, single control, R410a refrigerant, the power supply is 230V/1Ph/60Hz, and supply fan is EC centrifugal fan.

Note: *If multiple units are ordered, one Multi-unit control box is required.
ENGINEERED FEATURES

VARIABLE CAPACITY COMPRESSOR

Precise Heat Load Match
Loading and unloading between stages of cooling introduces most of the mechanical stress on a compressor. The turn on of a fixed compressor wears down contactors and the resulting inrush current wears down other electronics. Even for properly sized units and properly set minimum compressor run/stop timer, the loading and unloading can reach one hundred times a day which would be > 30,000+ times per year.

Our UNICOOL units precisely match the heat load at all times through variable capacity compressor technology, which minimizes sudden loading and unloading of the compressor, vastly extending the life and reliability of the entire cooling system.

![Graphs and charts showing Total Heat Load, Single Stage, Two Stage, and Precise Heat Load Match](image-url)
Synchronized Cooling Mode
With variable capacity systems, buildings with one or more redundant HVAC units can use Synchronized Cooling Mode, which allows any building with redundant units to achieve 14-16 EER while maintaining full redundancy except during emergency situations.

Turbo Boost Mode
In some situations, such as extreme high outdoor temperature, or increased equipment load, the heat load of the building may exceed the nominal cooling capacity of the HVAC system. When this happens, Turbo Boost Mode can be engaged automatically to deliver up to 125% of the nominal cooling capacity at the expense of slightly lower efficiency.

Soft Start
Instead of sudden and numerous starts and stops, the variable compressor will ramp up capacity at startup and continuously modulate capacity to match the load of the shelter. This means generators no longer need to be sized to Locked Rotor Amps and a smaller generator and transfer switch system can be used. Soft start has the following advantages:

- Minimizes mechanical stress during the start up of the compressor
- Eliminates spike voltage on start up
- Reduced noise from sudden compressor loading
Standard on all units, the highly configurable economizer features seamless transitions and a variable capacity up to 100% rated supply fan air volume.

Quieter, more efficient variable speed EC fans are standard on all models providing a highly favorable energy efficiency curve when compared to conventional AC fans.

Designed for operation between -31°F and 131°F ambient temperature.

Galvanized steel exterior coated with an additional layer of thermoset polymer provides two layers of protection against corrosion.

The Variable Capacity Wall Packaged Unit (WPU) can be optionally configured with AIRSYS Multi-Unit Controller (ASMUC) which can control up to six units at a time and up to 16 with an extension module. All parameters are available remotely through IP/SMNP for monitoring and setpoints and other critical control parameters can be changed remotely.

The research and development team at AIRSYS spared no expense in making sure the top components in the industry went into the design of the UNICOOL unit. Carel controls, EBM Papst fans, Ziehl-Abegg fans, Belimo damper actuators and Copeland Scroll Compressors all come standard in each unit.

Under the Multi-unit control, the system can operate in a fully functional Standalone Mode when communication is lost between the HVAC unit and the controller. This includes free cooling, mechanical cooling, dehumidification, and heating. Standard on all units, the highly configurable economizer features seamless transitions and a variable capacity up to 100% rated supply fan.

All variable capacity systems come with power monitoring tools that are displayed locally in addition to being available via remote access. Power monitoring can be used to measure efficiencies across systems, regions, and networks and can be used for predictive maintenance.
The ability to remove heat via the condenser coil is a critical element of HVAC performance. Monitoring heat exchange efficiency from the condenser coil facilitates intelligent maintenance decisions. Instead of cleaning coils on a schedule, coils can be cleaned as needed through remote monitoring.

The patented AIRSYS AFPD (Air Filter Protection Device) is field proven and engineered to protect air filters from dust and debris. In many locations, such as sites near dirt roads, freeways, farmlands, and any source of airborne particulates, the AFPD will optimize Free Cooling during periods when the air is clean thereby extending the life of the primary air filter. This has the dual impact of optimizing efficiency while reducing maintenance costs.

The system provides real-time performance parameter readings to the controller display, as well as remote monitoring. When coupled with remote monitoring, this feature can further enable predictive maintenance to save maintenance costs, as well as improve overall system reliability. Some of the parameter readout includes:

- Superheat
- Sub-Cooling
- EEV Status
- Variable Compressor Capacity
- Discharge Pressure (High Pressure)
- Discharge Temperature
- Suction Pressure (Low Pressure)
- Suction Temperature
Mechanical Cooling
When the outdoor temperature and indoor temperature difference is minimal, the mechanical cooling system will supply 100% of the cooling capacity to meet the refrigeration requirements.

Free Cooling
When the temperature difference between indoor and outdoor is higher than 10°F, the free cooling system can supply 100% of the cooling capacity, saving 90% energy.

Mechanical Cooling + Free Cooling
When the outdoor and indoor temperature difference reaches set point value, the built-in free cooling system will bring the fresh air into the room to avoid the compressor working, which reduces the power consumption.
AIRSYS (NORTH AMERICA) SALES AND SERVICE CONTACT:

Sales Contact:
Email: ASNsales@air-sys.us
Company Main: + 1 (855) 874-5380

Service Contact:
Email: ASNsales@air-sys.us
Company Main: + 1 (855) 874-5380

AIRSYS GLOBAL SUBSIDIARIES CONTACT:

AIRSYS Refrigeration Engineering Technology (Beijing) Co., Ltd.
Add: 10th floor, Hongkun Shengtong building, 19, Ping Guo Yuan Xi Xiao Jie,
Shijingshan, Beijing, China 100043
Tel: +86(0)10 68656161

Gu’an Airsys Environment Technology Company Ltd.
Add: 25, Dongfang Street, Gu’an Industry Park, Langfang City, Hebei Province, China
Tel: +86(0)10 68656161

Shanghai Airserve HVAC System Service Co., Ltd.
Add: #7-2, No.658, Daduhe Rd., Putuo District, Shanghai, China, 200333
Tel: +86(0)21 62452626 Fax: +86 (0)21 62459622

AIRSYS Australia Sales Office
Add: PO BOX 1088, Flagstaff Hill, SA, 5159, Australia
Tel: +61 479151080

AIRSYS BRASIL LTDA.
Add: Av. Moaci, 395 Conj 35/36 04083-000 – Planalto Paulista SAO PAULO – SP
Tel: +55 (11) 25976817 / +55 (11) 21585560

AIRSYS Deutschland GmbH
Add: Dahlweg 120, D-48153 Münster Germany
Tel: +49 (0) 1757535054 / 251-97307478

AIRSYS Turkey - Klima Sanayi ve Ticaret A.Ş.
Add: Barbaros Mahq, Evren Cad. Erzurumluar Sk. No:23 Ataşehir / Istanbul Turkey
Tel: +90(216) 4706280 Fax: +90(216) 4706290

AIRSYS (North America), LLC
ICT and Human Comfort Cooling:
Add: 7820 Reidville Rd.
Greer, SC 29651 , USA
Tel: +1 (855) 874 5380
Web: https://airsynorthamerica.com/

Medical Cooling:
Add: 3127 Independence Dr Livermore, CA 94551, USA
Tel: +1 800 7131543
Web: https://advancedcoolingtech.com/

AIRSYS Singapore Pte. Ltd
Add: 12 Lorong Bakar Batu #06-01 Singapore (348745)
Tel: +65 62787188 Fax: +65 68416301

AIRSYS (UK) Ltd.
Add: 245 Europa Boulevard, Warrington, UK. WA5 7TN
Tel: +44 (0) 1925 377 272 Call Centre: +44(0)8456099950

www.air-sys.com
Product design and specification subject to change without prior notice.